CLAIMS

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is as follows:

1. A process for melting thermoplastic material, particularly in the form of strip-like or fibrous refuse, in which the material is melted through contact with a liquid heat-transfer medium and is then separated from the heat-transfer medium, wherein steam at a temperature distinctly higher than the melting temperature of the material is used as a heat-transfer medium and is conducted over the introduced material, the molten or at least semi-molten material is entrained by the flowing steam and is then separated from the steam at temperature lying above the melting temperature of the material, and the steam is returned to the circuit.

2. A process according to claim 1, wherein the steam is heated to a defined temperature before the material is introduced and, after heating, a portion of the heated steam is diverted in order to set the temperature for the separation of steam and material.

3. A process according to claim 1, wherein the material inside a container through which steam can flow is brought into the flowing steam.

4. A process according to claim 1, wherein the flow rate of the mixture of steam and entrained material is distinctly reduced.

5. A process according to claim 4, wherein the flow rate is reduced by more than a factor of 10.

6. A process according to claim 5, wherein the flow rate is reduced by a factor of 20.

7. A process according to claim 1, wherein the steam and material are separated by means of centrifugal force.

8. A process according to claim 2, wherein the steam released by the entrained material, together with the steam used to adjust the temperature for the separation process, is guided to a steam accelerator.

9. A process according to claim 1, wherein the temperature of the steam is set at 300° C to 500° C, ideally 400° C to 500° C

10. A process according to claim 1, wherein the flow rate of the steam is set at 80 to 120 m/s, ideally 90 to 120 m/s.

11. A process according to claim 1, wherein the density of the steam for contact with the material is set at 1.15 to 1.25 kg/m^3.

12. A process according to claim 1, wherein the steam employed is water vapor.

13. A device for implementing the process according to claim 1, with a fan for the continuous circulation of steam in a conducting circuit, at least one nozzle device for the regulated introduction of liquid into the steam flow, a steam generator, behind which is positioned a melting compartment in which the material projects into the steam flow, and a heated separation stage for separating the steam from the molten material.

14. A device according to claim 13 with a branch line which diverges upstream from the melting compartment, which opens into a housing for the separator stage.

15. A device according to claim 14, in which the separator level exhibits a closed separator compartment, which together with the housing forms a heating space through which steam flows, from which heating space an outlet line opens into the steam circuit.

16. A device according to claim 13, in which the separator stage is a centrifugal separator.

17. A device according to claim 13, in which a conducting component with a clearly increased flow cross-section relative to the melting compartment is inserted between the melting compartment and the separator stage.

18. A device according to claim 13, in which the conducting circuit is closed.

19. A device according to claim 13, with a nozzle device for the regulated introduction of liquid for adjusting the steam density of the flowing steam, which nozzle device is positioned immediately in front of the melting compartment.

20. A device according to claim 13, in which a water reservoir is attached to at least one nozzle device.